

**Rule 21 Working Group Meeting #47**  
**San Diego Gas and Electric Offices**  
**Minutes of Meeting**

Attendees:

Chair: Scott Tomashefsky, CEC

Pat	Aldridge	SCE
Greg	Ball	Powerlight
Tom	Blair	City of San Diego
Petrina	Burnham	SDG&E
Denise	Canning	SCE
Jose	Cervantes	City of San Diego
Tom	Dossey	SCE
Michael	Edds	Edds Consulting
Paul	Fukumoto	Ingersoll-Rand Energy Systems
Susan	Gardner	Redhawk Energy Consultants
Ed	Grebel	SCE
Mike	Iammarino	SDG&E
Karl	Iliev	SDG&E
Jerry	Jackson	PG&E
Scott	Lacy	SCE
Bill	Martini	Tecogen, Inc.
Mike	Mazur	3 Phases Energy Services
Dave	Michel	California Energy Commission
Randy	Minnier	MPE Consulting
Bob	Panora	Tecogen
Edan	Prabhu	Reflective Energies
Paul	Samson	RealEnergy
Jim	Skeen	SMUD
Scott	Tomashefsky	California Energy Commission
Mohammad	Vaziri	PG&E
Chuck	Whitaker	Endecon Engineering

On Phone:

Werner	Blumer	CPUC
Chuck	Solt	

**General Session (Morning):**

1. The next meeting will be held on Friday September 26 in Sacramento.
2. C:105. SCE and SDG&E provided the DG application status lists. PG&E reported that the PG&E DG Status report was late and will be provided by PG&E within the next few days.

3. Scott Tomashefsky reported that the CEC OIR on DG issues that need regulatory resolution is still in the works and will move forward soon
4. Advice Letter filings relative to Net Energy Metering: Edison made a filing, but somehow Werner Blumer thought it was a draft. San Diego made a filing and Werner has requested SDG&E to modify its filing to become similar to Edison's. Werner would like a single application form and one Interconnection Agreement for all Net Metering, large and small. Edison would like to discuss this because Edison doesn't want a homeowner burdened with a large application form.
5. C-106: DG Monitoring: So far the monitoring has shown that there has been no significant impact on the grid, for those systems being monitored. The website is currently down to accommodate a server move. The new server will be faster and should be up and running in a few days.
6. C-108: Model Rule 21. Progress on the model Rule has been slow and should pick up soon.
7. T-101: IEEE P1547, formally "*IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems*" is now official. Copies were sent to all participants in the process. Copies are available from IEEE. Chuck W has prepared a comparison of 1547 to Rule 21 and circulated it for comments. The Technical Subgroup should review the comparison. There are two broad categories:
  - a. where one document address an issue but the other does not; and
  - b. where both documents address the issue, but provide differing requirements or thresholds.

There are many subcategories: where 1547 is more stringent than Rule 21, where Rule 21 is more stringent, where 1547 is more ambiguous, and so on. The Technical Subgroup will probably have to review one issue at a time, and either (i) conclude that Rule 21 complies with IEEE 1547, (ii) propose changes to Rule 21 to begin it in to compliance, or (iii) develop consensus language for taking an exception to 1547..

8. T-123 Hess cogen application was circulated for review. The testing performed for Hess by UL in March of 2002 was based on the then-current Draft 8 of IEEE 1547, which has different requirements from Rule 21. In reviewing the differences, Hess agreed to look into retesting to the Rule 21 requirements, in particular, the voltage and frequency settings and ranges and the synchronization requirements.
9. T-124 Plug Power There are a few questions on the Plug Power submission, but based on preliminary discussions with UL it looks like it will go through.
10. T-113 PG&E White Paper on redundancy philosophy: PG&E was going to develop and circulate a White Paper describing PG&E philosophy on DG interconnection protection issues; then seek comments from other Utilities and then present it to the Working Group. The White Paper is being reviewed by PG&E lawyers and should be distributed within a few days. PG&E's goal is to make interconnection safe, yet reasonable; it has set up a one-stop shop for DG interconnection, and would like solutions that have been agreed-upon to be memorialized for future consistent treatment. There may be separate solutions needed for inverter-based systems and for induction and synchronous systems; anti-islanding tests performed at Sandia showed that protection acceptable for inverter systems is not applicable to synchronous machines. Moh V. made a list of 8 points describing his philosophy for determining safety of an interconnection, and those 8 points will be the technical basis for the

White Paper. Moh circulated the 8 points to other Utility Protection Engineers but only one responded so far. Karl Iliev said that SDG&E would not likely respond to the questionnaire; while Ed Grebel noted that any response from SCE would be trivial and non-committal (e.g., would agree in some cases but not others). Ed stated further that PG&E is working towards its philosophy, and each utility has its own philosophy, and the differences will continue, because all circuits and situations are different. PG&E will consider whether to add the 8 points to the White Paper as an appendix and also whether to add to the 8 points the reasons behind the philosophy where it makes sense to do so; doing so may delay the release of the White Paper. The White Paper will be issued for review by stakeholders and then debated in the Working Group.

#### Other comments on the White Paper:

Randy Minnier was concerned that the White Paper-related findings may be made retroactive, or applied to works in progress and was concerned with the uncertainty. Scott pointed out that applications will not be impacted by the White Paper. Any changes to the Rule will be distilled from the White Paper and included in the Rule in future or may be included as part of the Supplemental Review guideline.

Herb Clowers: There is a big difference between SCE, SDG&E, SMUD on one side and PG&E on the other. At least let us see the White Paper so we know what to expect.

Jerry Jackson: PG&E will continue to work on the White Paper and if we don't achieve consensus, at least identify the areas where we agree and those areas where there are differences of opinion.

Scott Lacy: While there are differences in philosophy related to some interconnections, we should also mention there are several systems that are approved "robotically", or automatically. If the applicant is a Capstone 60 kW on a system that is robust, small when compared to the system, and does not export power, it is approved robotically. Utilities have developed a level of comfort with some systems, not with others and the others are currently going through the learning process. The White Paper is another step in the learning process.

Edan Prabhu requested all parties to give very serious consideration to the White Paper because it offers a pathway to address and resolve important philosophical differences.

11. Edan Prabhu reported that all comments on the CEC-Sponsored Interconnection Guidebook have been addressed, and that a pre-final version of the Guidebook will soon be sent to the CEC.
12. Jerry Jackson said that PG&E Interconnection handbook is being held up because the interconnection section for connection to transmission has not been completed.

13. Scott Tomashefsky and Chuck Whitaker said that they are looking to develop a mechanism that provides a pathway to resolves situations where there is no unanimity of opinion. This idea will be developed further.

#### **Afternoon Breakout Session (Process):**

14. P-108: Application. Mike Iammarino distributed the proposed revised Application Form, and the group went through a line-by-line review. Mike will incorporate the comments and re-issue the draft with the changes. There was some discussion on Werner Blumer's comment that the application form should be standardized for all DG. Should the application and agreement be the same for all generation including small generation Net Metering? Should there be three levels, one <10 kW, another >10<100 kW, and a third for larger? SCE has two, PG&E may have three. There may be value to consolidating all applications into a single form, but this should be balanced against the value to the small Net Metering customer who would be upset by a large complicated forms. It was decided for now to keep "lite" applications for small net metering and the larger application form for other use. Tom Dossey noted that additional work will be needed to consider questions related hybrid applications (Facilities with Net Metering and Non Net Metering Generation)
15. On a related subject, there is also a value to making Net Metering tariffs identical, but the Rule 21 group does not have the authority to propose changes to tariffs. On a practical level, there have been few complaints relative to net metering and it would best serve the group to address more pressing issues anyway.
16. P-112. Tom Dossey presented an evaluation of the issues in Rule 21 relative to Net Metering. Tom Blair says that the city of San Diego says that whoever requires a meter should pay for the meter. AB 58 says that meters may be required only if the size is greater than 50 kW. There are many issues yet to be resolved, particularly with regard to hybrid systems.

#### **Afternoon Breakout Session (Technical):**

17. **T105 –Inadvertent Export:** Bill Cook was not there to review his final minor edits. We discussed where it should go? The issue is too complicated for the Rule and goes beyond standard requirements. Discussion headed towards a separate document but then headed towards a Sup Rev section. Assign Bill to propose how it should go in Sup Rev. Potentially a few issues to resolve (Moh's questions).
18. **New Work Item:** Moh Vaziri requested initiating a new item to review the final step in the IRP (Section I). The current version of the PG&E Rule states the following, for systems that meet all of the screens: "*Generating Facility qualifies for Simplified Interconnection without additional requirements.*" A previous version of the Rule states *Generating Facility qualifies for Simplified Interconnection subject to the provisions of Rule 21 (version 23e).*

The concern is based on the fact that the IRP does not by itself cover all of the requirements specified in Section D. While the intent of the current wording is

“additional requirements *beyond those specified in Rule 21*”, one interpretation might be that requirements in Section D beyond those explicitly addressed in the IRP are not necessary.

19. **T101 – Impact of IEEE 1547 on Rule 21:** A new comparison document was generated by Chuck Whitaker based on the published version of 1547. Though the 1547 language is essentially identical, the new comparison lists the 1547 requirements in order along with the corresponding Rule 21 text. Part of 1547 Section 1 (Introduction), and all of Sections 4 (Requirements) and 5 (Testing) are included and most of the corresponding Rule 21 language. In addition, comments were provided for many of the sections noting areas of obvious agreement and disagreement as well as more subtle issues. We discussed several interpretational issues; for example, it was pointed out that one interpretation of Section 4.2.2 would be that reclose blocking and transfer trip be required in all cases.
20. **T114 Loss of Synchronism:** Jon Horak and Ed Grebel each provided some documentation prior to the meeting. Jon questioned the reasoning for inclusion of the requirement (is it for utility protection or for equipment self protection?). Ed provided a history of the provisions in various versions of 1547. There was general agreement that loss of synch is addressed by flicker requirement, though it could be argued that the Rule 21 requirement provides a threshold above which flicker is more likely to be an issue (though it does not take into account the likelihood that a particular unit will go out of synch). Some situations may be more susceptible to loss of synch—and, if high enough SCCR, to flicker— may be added. Jon Horak suggests that instantaneous overcurrent may also be a solution (in lieu of a loss-of –synch function). May add some info to supplemental review. |

Respectfully Submitted:

Edan Prabhu

Approved:

Scott Tomashefsky